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NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner
US Department of Commerce
United States Patent and Trademark
Office, PCT
2011 South Clark Place Room
CP2/5C24
Arlington, VA 22202
ETATS-UNIS D'AMERIQUE
in its capacity as elected Office

Date of mailing (day/month/year) 02 November 2000 (02.11.00)	
International application No. PCT/EP00/00133	Applicant's or agent's file reference PJC/G14370WO
International filing date (day/month/year) 07 January 2000 (07.01.00)	Priority date (day/month/year) 08 January 1999 (08.01.99)
Applicant NORTOFT, Uffe et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:
24 July 2000 (24.07.00)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer R. E. Stoffel Telephone No.: (41-22) 338.83.38
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REC'D 23 MAR 2001

WIPO PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PJC/G14370WO		See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416) FOR FURTHER ACTION	
International application No. PCT/EP00/00133	International filing date (day/month/year) 07/01/2000	Priority date (day/month/year) 08/01/1999	
International Patent Classification (IPC) or national classification and IPC H01M2/10			
Applicant DANIONICS A/S et al.			
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 9 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 4 sheets.</p>			
<p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> I <input checked="" type="checkbox"/> Basis of the report II <input type="checkbox"/> Priority III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability IV <input checked="" type="checkbox"/> Lack of unity of invention V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement VI <input type="checkbox"/> Certain documents cited VII <input checked="" type="checkbox"/> Certain defects in the international application VIII <input checked="" type="checkbox"/> Certain observations on the international application 			
Date of submission of the demand 24/07/2000		Date of completion of this report 21.03.2001	
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465		Authorized officer Teppo, K-M Telephone No. +49 89 2399 8130	

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP00/00133

I. Basis of the report

1. This report has been drawn on the basis of *(substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments (Rules 70.16 and 70.17).)*:

Description, pages:

1-21 as originally filed

Claims, No.:

1,18 as originally filed

2-17,19-28 as received on 10/02/2001 with letter of 07/02/2001

Drawings, sheets:

1/15-15/15 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP00/00133

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

5. ☒ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

see separate sheet

6. Additional observations, if necessary:

IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees the applicant has:

- ☐ restricted the claims.
- ☐ paid additional fees.
- ☐ paid additional fees under protest.
- ☐ neither restricted nor paid additional fees.

2. ☒ This Authority found that the requirement of unity of invention is not complied and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

- ☐ complied with.
- ☒ not complied with for the following reasons:
see separate sheet

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

- ☒ all parts.
- ☐ the parts relating to claims Nos. .

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims 3, 4, 6-11, 14-19 and 22-26
	No: Claims 1, 2, 5, 12, 13, 20-21, 27 and 28

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP00/00133

Inventive step (IS)	Yes:	Claims	14-19
	No:	Claims	1-13 and 20-28
Industrial applicability (IA)	Yes:	Claims	1-28
	No:	Claims	

2. Citations and explanations
see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:
see separate sheet

Re Item I

Basis of the report

Relating to point 5:

Claims 1 and 18 submitted with the letter of 7.2.2001 includes subject-matter that goes beyond the disclosure of the international application as filed (Art. 34(2)(b) PCT). This is due to the fact, that the cells **were not explicitly disclosed to be moveable laterally** in the original application documents. Under conditions other than the ones allowed by the application documents i.e folding the flexible connection between the cells and the circuit board in order to move the cells against one or both sides of the circuit board. Thus, this report is based on the originally submitted claims 1 and 18.

Re Item IV

Lack of unity of invention

1. Claims 1-13 and 20-28
Cell unit of electrochemical cells and a circuit board, the cells being folded onto one or both sides of the circuit board.
2. Claims 14-19
Cell unit of one or more than one flat electrochemical cell and a circuit board, the protruding sealing material at the terminal end of the cell enclosing and fixed to the edge of the circuit board.
3. The above underlined features are considered "a priori" to constitute the special technical features of each invention identified above not linked by a single inventive concept (cf. R. 13.2 PCT).

Re Item V

Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. CITED DOCUMENTS

Reference is made to the following documents:

- D1: US-A-5 367 431 (KUNISHI TATSUO ET AL) 22 November 1994 (1994-11-22) cited in the application
- D2: US-A-5 637 418 (BROWN STEPHANIE D ET AL) 10 June 1997 (1997-06-10) cited in the application
- D3: PATENT ABSTRACTS OF JAPAN vol. 098, no. 002, 30 January 1998 (1998-01-30) -& JP 09 260803 A (TOSHIBA BATTERY CO LTD), 3 October 1997 (1997-10-03)

2. NOVELTY, Art. 33(1) and (2)

The document D1 is regarded as being the closest prior art to the subject-matter of claim 1 and discloses a cell unit with two electrochemical cells (fig. 8, (9)) and a flexible circuit board (fig. 8, (75)). The cells are stacked on both sides of the circuit board and connected through conductive members (fig. 8, (86) and (87)), the circuitry thus being protected by the cells. D1 is considered to be novelty destroying for the subject-matter of claim 1, because the wording of claim 1 does not actually mean that electrochemical cells can be folded themselves, but that they are stacked onto a circuit board and connected, as is shown by the figures of the application, by bent members which may simply consist of electrical conduction (cf. fig. 1 of the present application).

The subject-matter of claim 20 differs from that of claim 1 in that it defines that the cells are arranged laterally of the circuit board before "folding" occurs. However, arranging the cells and the circuit board laterally is also done in D1, see fig. 5(c) (9) and (39), where an electrochemical cell (9) is always arranged laterally of another electrochemical cell and of the long circuit board (39). Hence, the subject-matter of claim 20 is not regarded as novel.

The subject-matter of claims 1 and 20 is also anticipated by document D2, which discloses a cell unit with a series of electrochemical cells (fig. 4, (42), (44), (46), col. 4, l. 45- 52) and a flexible circuit board (fig. 5, (47) and (48), col. 5, l. 34-38). The package is assembled by placing the electrochemical cell stack on one half of the circuit board and folding the other half over the stack thus protecting the circuitry (col. 6, l. 50-55). Hence, the circuit board is first placed laterally of the cells. The conduction of electrical current can be achieved by conductor layers

(col. 4, l. 59-64) that are joined and the contacts being disposed on one or two sides of the package (col. 5, l. 24-30) or the contact is achieved through openings (col. 5, l. 44-45); in either case a bent (i.e. folded) structure is formed involving flat cells and conductors connecting the cells in series (see D2, col. 4, l. 51) in the stacking direction.

The subject-matter of claims 1, 12, 13, 20, 27 and 28 is thus not novel in light of D1 or D2.

The cells and the circuit board appear to be of the same length and width as well as square shaped in D1 (fig. 8). Thus, the subject-matter of claims 2, 5 and 21 is not regarded as novel.

3. INVENTIVE STEP, Art. 33(1) and (3) PCT

3.1 Claims 1, 5, 12, 13, 20-21, 27 and 28

The problem underlying the present invention, relating to claim 1, is to provide an arrangement of electrochemical cells and associated electrical components in which the components can be protected and wherein a relatively high saving of space can be achieved i.e. for the same space occupied the amount of electrochemical energy is maximized.

The problem is solved by maximizing the area of the electrochemical cells and stacking them onto the circuit board.

The same problem is already solved in D1 and D2 in the same way and thus the inventive step of claims 1, 2, 5, 12, 13, 20-21, 27 and 28 is impaired.

3.2 Claims 3, 4, 6-11 and 22-26

Whether the circuit board has circuitry on one or both sides of the board and whether the cells are stacked onto these sides does not contribute to an inventive step. Hence no inventive step can be acknowledged for the subject-matter of claims 3 and 4.

It is of common knowledge to the person skilled in the art to add additional

components such as those described in claim 7 to the circuit board. Thus the subject-matter of claim 7 is considered to be obvious.

The subject-matter of claims 6, 8-10 and 22-25 are regarded as normal design options for the person skilled in the art and therefore do not contribute to an inventive step.

The subject-matter of claims 11 and 26 is not considered to be inventive in the case when the cells are stacked onto the same side of the circuit board. In that case the circuit board side remains unprotected.

3.3 Claim 14

The problem underlying the present invention, relating to claim 14, is to provide an alternative way of connecting the cells to the circuit board in which the components can be protected at the same time also maximizing the cell area.

The problem is solved by using a protruding sealing material, which also encloses also the edge of the circuit board. The only document suggesting a remotely similar solution is D3, which discloses a cell unit which includes a sheet-like cell and a wiring board, the cell being electrically connected to the wiring main body and the cell is sealed with a flexible film, the edge of which is sealed to the surface of the body, from which the subject-matter of claim 14 differs in that the cell is connected to the edge of the circuit board and the sealing material is protruding at the terminals, and the sealing material encloses the edge of the circuit board.

There is nothing in D3 suggesting any of these things, thus the subject-matter of claim 14 is considered to be inventive.

Re Item VII

Certain defects in the international application

- (a) In the description (p. 7, 13, 15 and 16) there are references to figures 1, 2, 3, 4 and 6, which do not exist.
- (b) According to the requirements of Rule 11.13(I) reference signs not appearing in the description shall not appear in the drawings, and vice versa. This requirement is not met in view of fig. 2a and the reference signs 2, 2' 3, 3', 4 and 4' (see the description p. 9, l. 10-15).

Re Item VIII

Certain observations on the international application

- (a) The terms "folded" and "foldable" used in the claims in connection with the cells do not have a basis in the description, since the cells are not foldable nor folded **but rather stacked onto the circuit board and the folding itself occurs only in respect of the flexible connection between the circuit board and the cells.** Hence the subject-matter of claims 1-13 and 18-28 are considered unclear (Art. 6 PCT). This broad interpretation of the above term "fold", not limited to the technical meaning clarified above in bold, constitutes a sufficient reason for denying novelty and inventive step for the subject-matter of claims 1-13 and 20-28.
- (b) The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).

CLAIMS

1. A cell unit which includes at least two flat electrochemical cells joined by flexible connections to at least one edge of a circuit board, the cells being moveable from a first position laterally of the circuit board to a second position arranged against one or both sides of the circuit board, whereby the circuitry on the circuit board is protected.

2. A cell unit according to claim 1, wherein the cells and the circuit board have the same lengths and widths.

3. A cell unit according to claim 1 or 2, wherein circuitry is provided on only one side of the circuit board and the cells are arranged against that one side or on both sides.

4. A cell unit according to claim 1 or 2, wherein circuitry is provided on both sides of the circuit board and the cells are arranged against both sides of the board.

5. A cell unit according to any preceding claim, wherein the cells and the circuit board are square or rectangular.

6. A cell unit according to any preceding claim, wherein cells are provided on two or more edges of the circuit board and optionally two cells are connected at the same edges of the board.

7. A cell unit according to any preceding claim, wherein the circuit board includes voltage equalising components, and/or temperature sensing components and/or charge control circuitry.

8. A cell unit according to any preceding claim, wherein each cell is sealed within sealing material, the material

protruding at the end of the cell which is connected to the circuit board such that sealing material is arranged both on top of and below the circuit board to protect the electrical connections between the cell and the circuit board.

9. A cell unit according to claim 8, wherein the protruding sealing material is fixed to the circuit board.

10. A cell unit according to claim 9, wherein the sealing material is fixed through one or more apertures in the circuit board.

11. A cell unit according to any preceding claim, wherein the cells are sealed within a sealing material and any sealing material protruding at an edge of the cell, other than that edge which is to be connected to the circuit board, is folded over onto the surface of the sealed cell, such folded sealed edges then forming a spacer when the cell is folded onto the circuit board.

12. A cell unit according to any preceding claim, wherein the circuit board is a flexible circuit board.

13. A cell unit according to any preceding claim, wherein the circuit board can itself fold, and in particular the flexible circuit board has a rectangular shape and can be folded in half.

14. A cell unit which includes one or more than one flat electrochemical cell and a circuit board, the or each cell having terminals which are connected at one edge of the circuit board, and the or each cell being sealed within sealing material which protrudes at the terminal end of the cell, the protruding sealing material enclosing the edge of the circuit board, and wherein the protruding sealing material is fixed or bonded to the circuit board.

15. A cell unit according to claim 14, wherein the protruding sealing material is bonded to itself through one or more perforation/s or apertures in the circuit board.

5 16. A cell unit according to claim 14 or 15, wherein the protruding sealing material is bonded to the edge of the circuit board by gluing, taping or heat sealing.

10 17. A cell unit according to any of claims 14 to 16, wherein the circuit board and/or the or each cell is square or rectangular in shape.

15 18. A cell unit according to any of claims 14 to 17, wherein the or each cell is moveable from a first position in the same plane as the circuit board to a second position arranged against the circuit board.

20 19. A cell unit according to any of claims 14 to 18 wherein the circuit board is foldable.

25 20. A method of producing a cell unit which includes at least two flat electrochemical cells and a circuit board, the cells being arranged laterally of the circuit board and being electrically connected thereto, the method including the step of folding the cells onto one or both sides of the circuit board whereby the circuitry on the circuit board is protected.

30 21. A method according to claim 20, wherein the cells and the circuit board are square or rectangular.

35 22. A method according to claim 21, wherein cells are provided on two or more edges of the circuit board and optionally two cells are connected at the same edges of the board.

23. A method according to any of claims 20 to 22, wherein

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each cell is sealed within sealing material, and the material at the end of the cell which is connected to the circuit board protrudes such that sealing material is arranged both on top of and below the circuit board to protect the electrical connections between the cell and the circuit board.

24. A method according to claim 23, wherein the protruding sealing material is fixed to the circuit board.

25. A method according to claim 24, wherein the sealing material is fixed through one or more apertures in the circuit board.

26. A method according to any of claims 20 to 25, wherein the cells are sealed within a sealing material and any sealing material protruding at an edge of the cell, other than that edge which is to be connected to the circuit board, is folded over onto the surface of the sealed cell, such folded sealed edges then forming a spacer when the cell is folded onto the circuit board.

27. A method according to any of claims 20 to 26, wherein the circuit board is a flexible circuit board.

28. A method according to any of claims 20 to 27, wherein the circuit board itself is folded, and in particular the flexible circuit board has a rectangular shape and is folded in half.

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INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference PJC/G14370WO	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/EP 00/ 00133	International filing date (day/month/year) 07/01/2000	(Earliest) Priority Date (day/month/year) 08/01/1999
Applicant DANIONICS A/S et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 6 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).
- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :
- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☒ **Unity of Invention is lacking** (see Box II).

4. With regard to the **title**,

- ☐ the text is approved as submitted by the applicant.
- ☒ the text has been established by this Authority to read as follows:

ARRANGEMENT OF ELECTROCHEMICAL CELLS AND CIRCUIT BOARD

5. With regard to the **abstract**,

- ☐ the text is approved as submitted by the applicant.
- ☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

- ☐ as suggested by the applicant.
- ☒ because the applicant failed to suggest a figure.
- ☐ because this figure better characterizes the invention.

6A

☐ None of the figures.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/EP 00/00133

Box III TEXT OF THE ABSTRACT (Continuation of Item 5 of the first sheet)

The abstract has to be changed as follows:
Line 2, after "cells" insert "(1',1'', 1''')";
line 3, after "board" insert "(5)";
line 10, after "parts" insert "(14)".

INT ATIONAL SEARCH REPORT

International Application No
PCT/EP 00/00133

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H01M2/10 H01M6/46 H01M10/48 H01G2/06 H05K1/18
H01M2/20

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H01M H01G H05K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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A	US 5 367 431 A (KUNISHI TATSUO ET AL) 22 November 1994 (1994-11-22) cited in the application column 8, line 11 - line 52; claim 18; figure 8 column 1, line 6 - line 10 ---	1,2,4,5
A	US 4 313 084 A (HOSOKAWA MASASHI ET AL) 26 January 1982 (1982-01-26) abstract; claims 1,2; figures 4A-5 column 5, line 5 - line 61 ---	7
A	US 5 637 418 A (BROWN STEPHANIE D ET AL) 10 June 1997 (1997-06-10) cited in the application ---	

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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier document but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
"&" document member of the same patent family

Date of the actual completion of the international search

14 June 2000

Date of mailing of the international search report

23/06/2000

Name and mailing address of the ISA

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Authorized officer

D'hondt, J

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>PATENT ABSTRACTS OF JAPAN vol. 095, no. 004, 31 May 1995 (1995-05-31) -& JP 07 022005 A (YUASA CORP), 24 January 1995 (1995-01-24) abstract</p> <p>---</p>	1
A	<p>PATENT ABSTRACTS OF JAPAN vol. 009, no. 169 (E-328), 13 July 1985 (1985-07-13) -& JP 60 041756 A (SEIKO DENSHI KOGYO KK), 5 March 1985 (1985-03-05) abstract</p> <p>---</p>	
A	<p>PATENT ABSTRACTS OF JAPAN vol. 098, no. 002, 30 January 1998 (1998-01-30) -& JP 09 260803 A (TOSHIBA BATTERY CO LTD), 3 October 1997 (1997-10-03) abstract</p> <p>---</p>	
A	<p>PATENT ABSTRACTS OF JAPAN vol. 018, no. 641 (E-1639), 6 December 1994 (1994-12-06) -& JP 06 251763 A (SHIN KOBE ELECTRIC MACH CO LTD), 9 September 1994 (1994-09-09) abstract</p> <p>-----</p>	

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 00/00133

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5367431 A	22-11-1994	JP 5114396 A DE 4235185 A	07-05-1993 29-04-1993
US 4313084 A	26-01-1982	JP 1400454 C JP 54127561 A JP 62004848 B JP 1352307 C JP 54127556 A JP 61015561 B DE 2912091 A	28-09-1987 03-10-1979 02-02-1987 11-12-1986 03-10-1979 24-04-1986 11-10-1979
US 5637418 A	10-06-1997	NONE	
JP 07022005 A	24-01-1995	NONE	
JP 60041756 A	05-03-1985	NONE	
JP 09260803 A	03-10-1997	NONE	
JP 06251763 A	09-09-1994	NONE	

PCT

WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

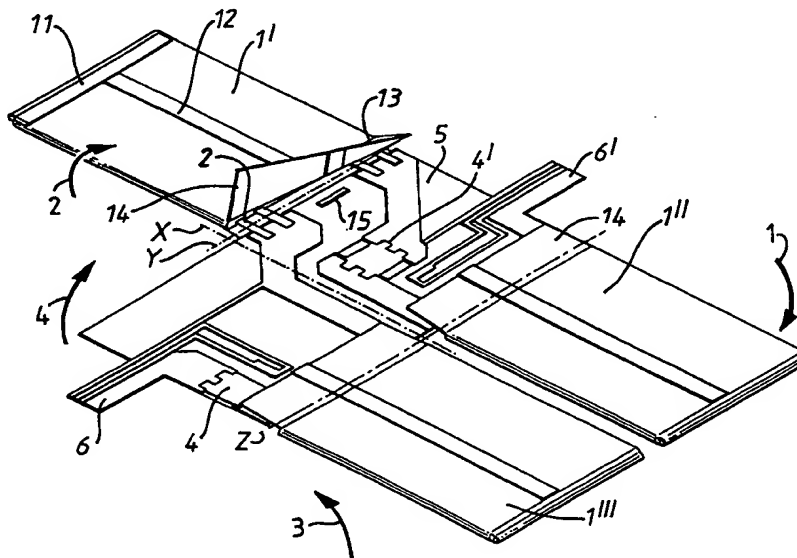
(51) International Patent Classification n ^o 7 : H01M 2/10, 6/46, 10/48, H01G 2/06, H05K 1/18, H01M 2/20		A1	(11) International Publication Number: WO 00/41253
(21) International Application Number: PCT/EP00/00133		(43) International Publication Date: 13 July 2000 (13.07.00)	
(22) International Filing Date: 7 January 2000 (07.01.00)			
(30) Priority Data: 9900396.4		8 January 1999 (08.01.99) GB	
(71) Applicant (for all designated States except US): DANIONICS A/S [DK/DK]; Hestehaven 21J, DK-5260 Odense (DK).			
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(74) Agent: CHARLTON, Peter, John; Elkington and Fife, Prospect House, 8 Pembroke Road, Sevenoaks, Kent TN13 1XR (GB).			
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(54) Title: **ARRANGEMENT OF ELECTROCHEMICAL CELLS AND CIRCUIT BOARD**



(57) Abstract

The application describes a cell unit which includes at least two flat electrochemical cells (1', 1'', 1''') and a circuit board (5), the cells being folded onto one or both sides of the circuit board whereby the circuitry on the circuit board is protected. Preferably, the cells and the circuit board have the same lengths and widths. The cells may be provided on two or more edges of the circuit board and optionally two cells are connected at the same edges on the board. A means of connecting electrochemical cells to a circuit board is also described wherein protruding parts (14) of the cell, at the terminal end, are bonded to the circuit board

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INTERNATIONAL SEARCH REPORT

Int .tional Application No
PCT/EP 00/00133

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H01M2/10 H01M6/46 H01M10/48 H01G2/06 H05K1/18
H01M2/20

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B. FIELDS SEARCHED

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Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

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